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Lewis Research Center
Cleveland, Ohio
44135

Reply to Attn of 4210

August 7, 1981

Dear PV Product Manufacturer:

The Photovoltaic Stand-Alone Applications Office of the NASA-Lewis Research Center has been conducting market assessment studies for the U.S. Department of Energy's National Photovoltaic Program. An important part of these studies is an assessment of the market potential for PV products in the agricultural sector.

Recently as part of this effort a visit was made to Colombia by a NASA/contractor assessment team composed of representatives of NASA-Lewis Research Center, DHR, Inc., and Associates in Rural Development. For your information enclosed is a brief "highlights" of the findings of that team. Included as an attachment is the most current Department of State "Background Notes" on Colombia. A more detailed report will be available for distribution later this year.

We hope this information will be of value in your international marketing planning. We, of course, would be pleased to receive your comments or suggestions. For any additional information regarding these assessments, please contact us at (216) 433-4000, ext. 5255.

Sincerely,

William A. Brainard
Stand-Alone Applications
Project Office

Enclosure



(NASA-TM-84011) HIGHLIGHTS OF NASA/DGE
PHOTOVOLTAICS MARKET ASSESSMENT VISIT TO
COLOMBIA (NASA) 13 P HC A02/MF A01 CSCL 05C

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Highlights of NASA/DOE Photovoltaics

Market Assessment Visit to Colombia

A NASA/DOE sponsored photovoltaic market assessment team composed of representatives of NASA-Lewis Research Center, DHR, Inc., and Associates in Rural Development, Inc. recently conducted a month-long study in Colombia (June 28 - July 23). The team contacted government officials and private sector representatives in Bogota and Cali, and visited rural development and agricultural sites in the departments of Cundinamarca, Caldas, Valle, and Vichada to determine the potential market for American photovoltaic products in the Colombian agricultural and rural sectors. The purpose of this brief report is to expedite the dissemination of information about the potential Colombian market to the United States photovoltaic industry.

Agriculture is vital to the Colombian economy. Agricultural production contributed 23% of the gross domestic product in 1980. Furthermore, about one third of Colombia's labor force works in agriculture, although this proportion has been declining as more people move into the service sector. Agricultural products are the dominant source of exports. Coffee alone accounted for 61% of Colombia's total export earnings in 1980. Less than 5% of the land area (some 5.3 million hectares) is cropland, and about 35% is pastureland. Over one million hectares are devoted to growing coffee, by far the largest crop by land area.

Government involvement in the agricultural sector is extensive, including marketing, supporting prices, importing and exporting, and controlling land use. The Institute for Agriculture and Livestock Marketing (IDEMA), originally established to purchase, store and market price supported products and to import food in short supply, was reorganized in 1976 and given authority to buy, sell, process, store, import and export any agricultural product. The Colombian Institute of Agrarian Reform, INCORA, is responsible for the redistribution of land, colonization, farm improvements, and titling. Small irrigation projects are also administered by INCORA. Irrigation and drainage in general are the responsibility of the Institute of Meteorology, Hydrology and Land Improvement (HIMAT).

The Integrated Rural Development program (DRI) aims to improve the welfare and productivity of small farmers (minifundistas). The program has identified 92,000 farms of less than 20 hectares in eight departments which will receive program benefits. During the current five year period 12 billion pesos (\$240 million) will be invested in this program. About 60% of this sum will be invested in directly productive activities, 15% in infrastructure, 14% in social welfare activities and 11% for program administration, control and evaluation. Farm families will be provided with shelter, potable water, electricity, roads, schools and health clinics by the DRI program.

Based on discussions with government officials, agricultural specialists and PV vendors, the principal market in the agricultural sector appears to be in the area of rural services. Approximately 80% of the rural population lacks electricity. Photovoltaics could provide, in order of priority to the farmers themselves, power for domestic water pumping, electrodomestics (e.g., residential lighting, television and radio), water pumping for irrigation, and finally agricultural processes. However, since these potential rural customers are generally too poor to afford photovoltaics, purchases would be highly dependent on heavy government subsidies. This is unlikely unless PV can be demonstrated to be the most economic alternative available. A private market for PV may develop in the Llanos region of eastern Colombia where large landowners are interested in stand-alone power units for cattle watering and domestic electricity need.

For most of the major crops examined, and especially sugar cane, rice, and coffee, PV does not appear to have a significant market potential because in most cases, post harvest processing takes place in centralized, electrified areas. However, coffee depulping and sugar cane crushing with trapiches are two areas of processing where PV could be applied at the farm level. The final report will indicate the market size for the promising photovoltaic agricultural applications and the year in which they will become cost-competitive.

The market for photovoltaics in Colombia appears promising for several non-agricultural uses, such as rural telephones and telecommunications, maritime signals, vaccine preservation and rural health clinics. TELECOM, the Telecommunications Authority, in 1980 awarded a contract to Lucas Energy Systems, Ltd. to supply some 2500 PV-powered rural telephone units with a total output of about 100 Kw. The total value of the contract is \$3 million including control and

monitoring equipment, spare parts, training assistance and some installation supervision. After installation is completed in 1982, TELECOM plans to submit a solicitation for an additional 2200 PV-powered telephone systems for rural areas not covered under the present contract. The Colombia Satellite Program (SATCOL) has plans for 150 rural satellite receiving stations that would be installed in the third phase of the program in the mid-1980's. PV systems would be the likely choice for powering these remote rural stations according to Colombian officials interviewed. Additionally, the Colombian navy has installed several PV-powered buoys on an experimental basis. Finally, the Ministry of Health has expressed interest in PV-powered refrigerators for vaccine preservation and power needs for rural clinics.

The current Colombian energy situation favors the use of photovoltaic and other renewable energy sources. Colombia's oil production began to decline in the early 1970's and the country became a net oil importer in 1975. Gasoline and diesel prices have risen steadily due to a government policy of gradually instituting real market prices for energy. Currently, gasoline costs about 88 cents per gallon and diesel about 70 cents per gallon. However, the costs of transportation to remote regions can raise the cost of diesel to in excess of \$3.00 per gallon because it must often be transported by boats or small planes.

The reliability of the electric grid is another serious problem in Colombia. Presently, hydroelectric power accounts for 69% of installed capacity. A combination of limited reserve capacity, light rainfalls and delays in completion of several key power projects has produced daily rationing of electricity in all of Colombia except the Atlantic coast. Furthermore, unscheduled blackouts are a recurrent problem. The Colombian government projects that the blackouts will continue until early 1982, assuming that current construction schedules hold.

Colombia's mountainous terrain and widely dispersed rural population make rural electrification difficult and costly. Only 15%-20% of the rural population is currently served by the electric grid. The Colombian Electric Energy Institute, ICEL, has direct responsibility for rural electrification in eleven departments and coordinates the rural electrification activities of utilities in other areas. By 1982 CORELCA, the power utility for the Atlantic Coast, will be interconnected with the ICEL network. Due to increasing fuel costs and transportation and maintenance problems, the electric utility sector is seeking alternatives to diesel generators for rural areas. ICEL is particularly interested in mini-hydro plants of 100-500 KW, wind generators and geothermal energy.

There is only limited solar insolation data available for most of Colombia, however, qualitative (hours of sunshine) reports obtained by the team suggest that the Atlantic Coastal and Eastern Plains regions offer attractive solar resource levels. There is a general lack of awareness of PV applications in both the public and private sectors. Many Colombians are skeptical of PV because its usefulness has not been demonstrated. Photovoltaic research in Colombia is concentrated in the National University and is at a theoretical level. Production of cells is generally regarded to be beyond the present technical capability of Colombian industry, but many balance of systems components are manufactured in-country and assembly of PV arrays in Colombia seems promising. Three American firms and SHARP, a Japanese PV producer, have representatives in Colombia. Sales thus far have been limited to the government sector, especially TELECOM.

In conclusion, the primary market for PV in Colombia in the near term will be in the public sector. Government subsidies and/or financing will be critical to marketing in the agricultural sector. Lack of familiarity with PV systems could hamper sales unless demonstration projects can be mounted. Joint-ventures with capable Colombian partners should be considered by American PV manufacturers in order to lower system costs and gain an advantage in obtaining government purchase of PV equipment.

A partial list of Colombian contacts is provided below:

Dr. Jaime Navas Alvarado
Assistant Director of Research
Colombian Agricultural and
Livestock Institute
Ministry of Agriculture
Calle 37 No. 8-43 piso 8^o
Bogota
Interest: Irrigation and Post-harvest
Operations

Dr. Carlos Alberto Angel
Energy Division
National Planning Department
Calle 25 No. 13-19, 8^o-piso
Bogota, D.E.
Interest: Rural Electrification

Dr. Paolo Lugari Castrillon
Director General
Centro Las Gaviotas
Paseo Bolivar No. 20-90
Bogota, D.E.
Interest: Rural Development

Dr. Ismael Lara
Director, Convenio Colombo-Holndes
Ministry of Health
Calle 67 No. 9-20, #101
Bogota
Interest: Vaccine Refrigerator and
Rural Health Stations

Ing. Carlos Sabogal
Chief of Planning and Design
TELECOM
Carrera 10 No. 23-32, 5^o-piso
Bogota, D.E.
Interest: Rural Communication

German Valenzuela Samper
Technical Director
National Federation of Coffeegrowers
Calle 14 No. 7-36, 8^o-piso
Bogota, D.E.
Interest: Coffee Drying and Depulping

background notes

Colombia



United States Department of State
Bureau of Public Affairs

July 1980



Official Name:
Republic of Colombia

PROFILE

People

POPULATION (1979): 26.2 million. **ANNUAL GROWTH RATE**: 2.2%. **ETHNIC GROUPS**: mestizo 58%, Caucasian 20%, mulatto 14%, Negro 4%, mixed Negro-Indian 3%, Indian 1%. **RELIGION**: Catholic 95%. **LANGUAGE**: Spanish. **EDUCATION**: *Years compulsory*—5 yrs. primary school. *Attendance*—77% of children enter, but only 28% finish primary school. *Literacy*—72%. **LIFE EXPECTANCY**: 70 yrs. women, 65 yrs. men. **WORK FORCE** (5.6 million, 1966): *Agriculture*—47%. *Industry and commerce*—22%. *Services*—18%.

Other—13% (1964). **UNEMPLOYMENT** (1975): 10–13%.

Geography

AREA: 1.14 million sq. km. (440,000 sq. mi.). **CAPITAL**: Bogotá. **TERRAIN**: Flat coastal areas, central highlands mountains, and eastern plains. **CLIMATE**: Tropical on coast and eastern plains, cooler in highlands.

Government

TYPE: Republic. **DATE OF INDEPENDENCE**: July 20, 1810. **CONSTITUTION**: 1886 (amended).

BRANCHES: *Executive*—President (Chief of State and Head of Government). *Legislative*—bicameral Congress. *Judicial*—Supreme Court.

SUBDIVISIONS: 23 Departments, 3 *intendencias*, 1 *comisarias*, Bogotá Special District.

POLITICAL PARTIES: Liberal Party, Conservative Party, ANAPO (National Popular Alliance), UNO (National Opposition Union), FUP (Front for the Unity of the People), MOIR (National-Independent Labor Movement), Communist Party, Socialist Workers Party. **SUFFRAGE**: Universal over 18.

CENTRAL GOVERNMENT

BUDGET: \$3.5 billion.

DEFENSE: 1.02% of GNP (1979 est.).

FLAG: Top half yellow; bottom half blue and red stripes of equal width.

Economy

GNP (1979 est.): \$26.2 billion. **ANNUAL GROWTH RATE** (1979): 6–7%. **PER CAPITA INCOME** (1979 est.): \$986. **PER**

CAPITA GROWTH RATE (1979 est.): 11%.

NATURAL RESOURCES: Petroleum, natural gas, coal, iron ore, nickel, gold, copper, emeralds.

AGRICULTURAL PRODUCTS: Coffee, bananas, rice, corn, sugarcane, plantains, flowers, cotton, tobacco.

TYPES OF INDUSTRY: Textiles, processed foods, clothing and footwear, beverages, chemicals, metal products, cement.

TRADE (1979 est.): *Exports*—\$3.36 billion: coffee, petroleum products, bananas, textiles, flowers, metals. *Partners*—US 28%, Venezuela 13.4%, FRG 17.6%, UK 5.5%, Switzerland 4%. *Imports*—\$4.62 billion: machinery, grains, electrical equipment, chemicals, transportation equipment. *Partners*—US 33.7%, Japan 7.2%, FRG 6.4%, Brazil 5.8%, France 3.6%.

OFFICIAL EXCHANGE RATE (April 1980): 46 pesos=US\$1.

ECONOMIC AID RECEIVED: *Total*—\$488 million in 1979 from international organizations. *US aid*—\$1.6 billion 1946–75.

MEMBERSHIP IN INTERNATIONAL ORGANIZATIONS: UN and most of its specialized agencies, Organization of American States (OAS), Generalized Agreement on Tariffs and Trade (GATT), International Bank for Reconstruction and Development (World Bank), Inter-American Development Bank (IDB), Andean Pact, International Coffee Organization (ICO), Latin American Free Trade Association (LAFTA), Latin American Economic System (SELA), INTELSAT.



PEOPLE

Colombia is the fourth most populous nation in Latin America after Brazil, Mexico, and Argentina. Movement from rural to urban areas has been heavy, but the trend is declining. Persons living in urban areas increased from 40% of the total population in 1951 to about 63% in 1973. A large population of young people are dependent upon Colombia's educational and health facilities. The nine eastern Departments and Territories, about 54% of Colombia's area, have less than 3% of the population and a density of fewer than one person per square kilometer (two persons per square mile). The country has 23 cities with 100,000 or more inhabitants.

The diversity of ethnic origins results from the intermixture of indigenous Indians, Spanish colonists, and Negro slaves brought from Africa. Today, only about 1% of the people can be identified as fully Indian on the basis of language and customs. Few foreigners have immigrated to Colombia. In 1979, more than an estimated 25,000 U.S. citizens were living in Colombia

GEOGRAPHY

Colombia, located in the northwest corner of South America, is bordered by Venezuela, Brazil, Peru, Ecuador, and Panama. It is the continent's fourth largest country and has a coastline of more than 1,448 kilometers (900 mi.) on the Pacific Ocean and 1,760 kilometers (1,100 mi.) on the Caribbean Sea.

The Andes Mountains enter Colombia in the southwest and fan out into three distinct ranges, which run through the country from southwest to north and northeast. Colombia has three main topographical regions: (1) flat coastal areas broken by the high Sierra Nevada de Santa Marta mountain range; (2) central highlands; and (3) sparsely settled eastern plains (the *llanos*) drained by tributaries of the Orinoco and Amazon Rivers.

The climate varies from tropical heat on the coast and the eastern plains to cool, springlike weather with frequent light rains in the highlands. The highlands experience two dry seasons, from December to February and June

to August. Bogotá is 2,630 meters (8,630 ft.) above sea level. The average daily high temperature is between 18° and 20°C (64° - 68° F); its low range from 9° to 11°C (48° - 51° F).

HISTORY

During the pre-Colombian period, the area currently comprising Colombia was inhabited by Indians, mostly primitive hunters or nomadic farmers. The Chibchas, who lived in the Bogotá region, attained the highest level of civilization among the various Indian groups. Spaniards first sailed along the north coast of Colombia as early as 1500, but the first permanent settlement, at Santa Marta, was not established until 1525. In 1549, the area now known as Colombia was established as a Spanish colony with the capital at Bogotá. In 1717 Bogotá became the capital of the Viceroyalty of New Granada, which included what is now Venezuela, Ecuador, and Panama. The city became one of the principal administrative centers of the Spanish possessions in the New World, along with Lima and Mexico City. On July 20,

ORIGINAL PAGE IS
OF POOR QUALITY

1810, the citizens of Bogotá created the first representative council to defy Spanish authority. Total independence was proclaimed in 1813, and in 1819 the Republic of Greater Colombia was formed.

The Republic

After the defeat of the Spanish Army, the Republic included all the territory of the former Viceroyalty. Simon Bolivar was elected first President and Francisco de Paula Santander Vice President of Greater Colombia. In 1822 the United States became one of the first countries to recognize the new Republic and to establish a resident diplomatic mission. In 1830 Ecuador and Venezuela withdrew from the Republic and became independent states. Panama remained part of Colombia until 1903.

Two political parties that grew out of conflicts between the followers of Bolivar and Santander, the Conservatives and the Liberals, have dominated Colombian politics. Bolivar's supporters, who later formed the nucleus of the Conservative Party, advocated a strong centralized government, a close alliance between the government and the Roman Catholic Church, and a limited franchise. Santander's followers, forerunners of the Liberals, wanted a decentralized government, state rather than church control over education and other civil matters, and a broadened suffrage. Those were the principal topics of political debate throughout the 19th and early 20th centuries, although today they are no longer active issues. The Conservatives successfully established a highly centralized government. The Liberals eventually won universal adult suffrage and a large measure of separation of church and state, although the Catholic Church retains some important powers; e.g., the right to give religious instruction in all public schools.

Elected Liberal administrations were in power from 1860 to 1884 and from 1930 to 1946. Conservatives held office from 1884 to 1930 and 1946 to 1953.

Colombia, unlike many Latin American countries, established early a solid tradition of civilian government and regular free elections. The military has seized power only three times in Colombian history—in 1830, 1854, and 1953. On the first two occasions, the military dictator was overthrown and civilian rule restored in less than a year. Colombia has also had only one full-fledged civilian dictatorship (1884-94).

Despite Colombia's commitment to democratic institutions, its history has

suffered periods of violent conflict. Two particularly tragic civil wars grew out of bitter rivalry between the Conservative and Liberal Parties. The War of a Thousand Days (1899-1902) cost an estimated 100,000 lives. During *La Violencia* ("the violence") of the 1940s and 1950s, 100,000-200,000 people were killed.

A military coup in 1953 brought General Gustavo Rojas Pinilla to power. Initially, Rojas enjoyed wide popular support, partly for his success in reducing *La Violencia*. When he did not promptly restore democratic government, however, he was overthrown in 1957 by the military with the backing of both political parties, and a provisional government took office.

The National Front

In July 1957, the last Conservative President, Laureano Gomez (1950-53), and the last Liberal President, Alberto Lleras Camargo (1945-46), issued the "Declaration of Sitges" in which they proposed the formation of a "National Front," under which the Liberal and Conservative Parties would govern jointly. Through regular elections the Presidency would alternate between the parties every 4 years; the parties would also have parity in all other elective and appointive offices.

Colombian voters approved a series of constitutional amendments necessary to effect these proposals, and in 1958 the provisional government relinquished power to Lleras Camargo, who had been elected the first President of the National Front government with 80% of the vote. As called for in the National Front agreement, a Conservative, Guillermo Leon Valencia, was nominated to succeed Lleras Camargo in 1962; he won 62% of the vote. Another Liberal, Lleras Camargo's distant cousin Carlos Lleras Restrepo, was elected President in 1966 with 71% of the vote.

The first three National Front Presidents brought an end to *La Violencia* and the blind partisanship which had afflicted both parties. They committed Colombia to the far-reaching social and economic reforms proposed in the Charter of the Alliance for Progress and, with assistance from the United States and the international lending agencies, made major strides in economic development.

In December 1968, after 2 years of effort, President Lleras Restrepo won ratification by Congress of important constitutional reforms. These abolished the requirement of a two-thirds majority in Congress for passage of major

legislation, increased the powers of the executive branch in economic and development matters, and provided for a carefully measured transition from the National Front to traditional two-party competition.

The last President under the National Front alternating system was Misael Pastrana, a Conservative, elected in 1970. Pastrana won the Presidency with 40.8% of the vote, defeating three other candidates. His closest contender was General Gustavo Rojas Pinilla, the candidate of the National Popular Alliance (ANAPO), a populist opposition party. President Pastrana continued the Lleras administration's emphases on social objectives and economic development with high priority given to generating employment, primarily by the stimulation of urban construction.

Departmental and municipal council elections in April 1972 resulted in a victory for Colombia's traditional parties and a defeat for ANAPO; the Liberals received 46% of the total vote; the Conservatives 31%; and ANAPO 19%. Prior to that election, ANAPO had run as a faction of the Liberal or Conservative Party, but now under National Front rules it is permitted to run as a separate party.

The parity arrangement for other offices has been phased out. In departmental legislatures and city councils it ended in 1970 and in the Congress in 1974. Parity in the appointment of the Cabinet, governors, and mayors continued until 1978. Although the parity system established by the Sitges agreement is no longer in effect, the Colombian Constitution requires that the losing major political party be given adequate and equitable participation in the government. When Liberal President Turbay took office in August 1978, he appointed a Cabinet of seven Liberals, five Conservatives, and one non-partisan member. Third parties took little part in the 1978 presidential election and the 1980 state and local mid-term elections.

GOVERNMENT

The 1886 Constitution has been amended frequently and substantially. The most recent major revisions were approved in December 1979. The Constitution guarantees freedom of religion, speech, and assembly, along with other basic rights. The national government has separate executive, legislative, and judicial branches. The President is elected for a 4-year term and may not serve consecutive terms. The President's extensive powers include appointing Cabinet Ministers and

Departmental and Territorial Governors without congressional confirmation.

No Vice President as such exists. Every 2 years Congress elects a "designate" from the President's party to become Acting President in the event of the President's ill health, death, or resignation. If the President's inability to serve is permanent, the Acting President must call new elections within 3 months. The designate has no duties, receives no salary, and may hold other public or private positions while serving as designate. If Congress fails to elect a designate and the President is unable to serve, the Foreign Minister becomes Acting President.

Colombia's bicameral Congress consists of a 113-member Senate and a 199-member Chamber of Representatives, all elected on the basis of proportional representation. Members are elected at the same time as the President but may be reelected indefinitely. If a Member of Congress is absent temporarily or permanently, the seat is taken by an alternate who is elected at the same time as the member. Congress meets annually from July 20 to December 16, and the President may call it into special session at other times.

Judicial power is exercised by a 20-member Supreme Court of Justice and subordinate courts. Half the justices of the Supreme Court are elected by the Senate and half by the Chamber of Representatives from lists submitted by the President. The justices serve 5-year terms and may be reelected. Lower court judges are elected by the Supreme Court.

The country is divided into 23 Departments, the Federal District of Bogotá, 3 *intendencias*, and 4 *comisarias* (territories of lesser rank not having local legislatures). Governors and mayors, who are appointed by the President, are considered agents of the national government, although their powers are somewhat limited by the elected departmental legislatures and municipal councils. The latter two bodies are elected to 2-year terms.

Principal Government Officials

President—Julio Cesar Turbay Ayala
Ministers

Foreign Relations—Diego Uribe Vargas

Finance—Jaime Garcia Parra

Labor—Laureano Arrellano Rodriguez

Education—Guillermo Angulo Gomez

Justice—Felio Andrade Manrique

Public Health—Aifonso Jaramillo Salazar

Government—German Zea Hernandez

Economic Development—Andres Restrepo Londono

Agriculture and Livestock—Gustavo Antonio Dager Chadid

Public Works—Enrique Vargas Ramirez

Communications—Gabriel Melo Guevara

Mines and Energy—Humberto Avila Mora

Defense—Gen. Luis Carlos Camacho Leyva

Mayor of Bogotá—Hernando Duran Dussan

Ambassador to the United States—Virgilio Barco Vargas

Ambassador to the U.N.—Indalecio Lievano Aguirre

Ambassador to the OAS—Carlos Bernal Tellez

Colombia maintains an Embassy in the United States at 2118 Leroy Place NW., Washington, D.C. 20008 (tel. 202-387-5828) and numerous Consulates throughout the United States.

DEFENSE

The Ministry of National Defense of Colombia is charged with the Republic's internal and external defense and security. Under the leadership of the Minister of National Defense, normally an army general, are the army, navy, air force, and national police. A small marine corps is part of the navy. The services, including the national police, are known jointly as the armed forces and number about 110,000 uniformed personnel.

The armed forces are responsible for defense against external attack and for internal security of the country, including control of territorial waters, boundaries, and land areas; civil defense; control of contraband; counterinsurgency, counterterrorism, and counterterrorist operations; antinarcotics trafficking efforts; and crime fighting and prevention. The air force, in addition to its normal missions, also provides transport service to isolated rural areas of the country. The navy has a small riverine transport capability for areas of the country not reachable by road or air. The army conducts civil action projects, including roadbuilding, establishment of medical and educational facilities, and, in conjunction with the other services, the opening of frontier areas.

Many Colombian military personnel have received training in the United States or in U.S. military schools in the former Canal Zone, Panama. Over the

READING LIST

These titles are provided as a general indication of the material published on this country. The Department of State does not endorse unofficial publications.

- Major English-language newspaper: *The Chronicle* (weekly).
- American University. *Area Handbook for Colombia*. Washington, D.C.: U.S. Government Printing Office, 1977.
- Corr, Edwin G. *The Political Process in Colombia*. Denver: University of Denver Press, 1972.
- Dix, Robert H. *Colombia: The Political Dimensions of Change*. New Haven: Yale University Press, 1967.
- Garcia Marquez, Gabriel. *One Hundred Years of Solitude*. New York: Avon Publishers, 1972.
- Holt, Pat. M. *Colombia Today—And Tomorrow*. New York: Praeger, 1964.
- MacCain, Gary. *Colombia and Venezuela and the Guianas*. New York: Time, Inc., 1965.
- Mauhin, Richard L. *Soldiers, Guerrillas, and Politics in Colombia*. Lexington, Mass.: Lexington Books, 1973.
- Payne, James L. *Patterns of Conflict in Colombia*. New Haven: Yale University Press, 1968.
- Smith, T. Lynn. *Colombia: Social Structure and Process of Development*. Gainesville: University of Florida Press, 1967.

Pamphlets on various aspects of Colombia (including a monthly newsletter, *Colombia Today*) are available without charge from the Colombia Information Service, 140 East 57th Street, New York, NY 10022 (tel. 212-421-8270).

years, the United States has provided equipment to the Colombian military through the Military Assistance Program or through foreign military sales.

ECONOMY

Propelled by the coffee sector, Colombia's economy grew 6-7% in 1979. Coffee production during the 1978-79 coffee year (October 1-September 30) was up 7%, and other agricultural production rose by 12.1%, despite a stagnant year in other sectors. Industrial production, led by the metals, machinery, and automotive sectors, grew by 8.5%, and construction activity jumped 27.9%. For 1979 both the rate of agricultural output and industrial production dropped slightly. Strong job generation in 1978 held unemployment to 8.2%, low by Colombian standards, and this rate held stable in 1979.

Since 1975 the government's top



Bogotá's bullfight ring and the Monserrate on the peak of the mountain.

economic priority has been control of domestic inflation. Held to just under 18% in 1978, it reached 30% in 1979, far surpassing the government's goal of 20%. Large wage increases, OPEC-related price boosts, and money supply growth were major inflationary factors in 1979.

Public sector spending has been held back in fear of further fueling inflation, but some outflows should begin in 1980-81, as decisions must be made on major projects, including those in the power, telecommunications, and transportation areas, that will lay the foundation for continued economic growth in the late 1980s.

Trade

The coffee bonanza, which began in the mid-1970s, and income from the drug trade have pushed Colombia's foreign reserves to \$4 billion, a record high level and the equivalent of the import

bill for almost 1 year. Coffee, which in 1978 represented close to 70% of total export registrations, is the mainstay of Colombia's export sector. The world's second largest producer (after Brazil) and exporter of coffee, Colombia exported 11.4 million 60-kilogram bags in 1979. In 1979, 30% of Colombia's coffee was sent to the United States. The Federal Republic of Germany and the Netherlands were the next largest customers.

Export diversification, to reduce dependence on coffee as a foreign exchange earner, is one of Colombia's principal foreign economic policy objectives. During the 1970s exports of so-called "non-traditional" goods, such as textiles and cut flowers, have expanded rapidly. With foreign exchange reserves at high levels, the government's policy has been to allow imports to grow at above-average rates to increase the outflow of funds.

The United States is Colombia's major trading partner, supplying 41% of imports and taking 26% of exports in 1979. Colombia has been actively seeking new markets, and other important trading partners include Venezuela, France, and the Federal Republic of Germany. Although Colombia is interested in developing markets for its manufactures and processed goods, these products are less competitive in world markets because of the high rate of domestic inflation and slow pace of peso devaluation.

In 1976, after several decades as a petroleum exporter, increasing consumption and declining production forced Colombia to become a net importer of petroleum. Although the government has instituted new pricing policies to raise the cost of petroleum products and thus to encourage exploration for new oil, Colombia cannot hope to become self-sufficient in petroleum again for many years.

Agriculture, Natural Resources, and Industry

Agriculture contributes about 30% of the gross domestic product. Due to the diverse climate and topography of Colombia, a variety of crops can be grown. Cacao, sugarcane, coconuts, bananas, plantains, rice, tobacco, cassava, and most of the nation's cattle are produced in the hot regions (from sea level to 1,000 m. — 3,280 ft.). The temperate regions (1,000–2,000 m. — 3,280–6,562 ft.) are better suited for coffee, corn and other vegetables, and fruits such as citrus, pears, pineapples, and tomatoes. The cold regions (2,000–3,000 m. — 6,562–9,842 ft.) produce wheat, barley, potatoes, cold-climate vegetables, dairy cattle, and poultry. All of these regions yield various forest products, ranging from tropical hardwoods in the hot country to pine and eucalyptus in the colder areas.

Colombia's proven oil reserves are about 600 million barrels. Coal reserves estimated between 9 and 36 billion metric tons are the largest in Latin

FOREIGN BUSINESS INFORMATION

For information on foreign economic trends, commercial development, production, trade regulations, and tariff rates, contact the Bureau of Export Development, US Department of Commerce, Washington, DC 20230. This information is also available from any of the Department of Commerce district offices located throughout the US.

America. Colombia produces 90% of the world's supply of emeralds and is an important producer of gold and platinum. Other mineral resources include iron ore, nickel, phosphate rock, limestone, gypsum, and salt.

Colombia is the most industrialized member of the five-nation Andean Pact. It has four major industrial centers—Barranquilla, Cali, Medellin, and Bogota—located in distinct geographical regions. The Turbay administration's development strategy is one of decentralization of industry and promotion of regional growth centers, integrated by expanded and improved transportation and communication networks.

Foreign Investment

As a member of the Andean Pact, Colombia does not actively seek foreign investment. However, investors in mining, petroleum, and export industries have found a favorable investment

climate. Potential local employment and revenues are important criteria in evaluating the desirability of foreign investments. To take advantage of Andean Common Market tariff benefits, a company must be at least 51% Colombian owned.

U.S. direct foreign investment in Colombia totaled \$507 million in 1979. Foreign investment in financial institutions has declined since 1975, reflecting the Colombianization of local banks.

POLITICAL CONDITIONS

The April 1974 elections marked a return to normal competition for the Presidency; candidates from all parties were permitted to run. Alfonso Lopez Michelsen, the Liberal Party candidate, won with 55% of the vote, and the Liberals gained a large working majority in both houses of the Colombian Congress. Lopez's nearest rival, Conservative Alvaro Gomez, received 31% of the vote, and ANAPO candidate Maria Eugenia Rojas de Moreno, daughter of General Rojas Pinilla, received about 9%. Two other candidates, a Marxist and a Christian Democrat, received 2% and 0.1%, respectively. The Lopez administration concentrated on policies aimed at solving Colombia's broad economic problems—inflation, unemployment, and income distribution—and took action to restructure Colombia's tax system, to end a variety of government subsidies, and to cut government spending.

The congressional elections of February 1978 and the presidential election in June of the same year again illustrated the dominance of the Liberal and Conservative Parties. The two major parties together won 305 of the 311 congressional seats at stake. ANAPO did not contest the elections as a unified organization and lost all the 22 seats it had retained in the 1974 elections. Several radical left parties and coalitions participated in the election and won six seats in the Congress. In an unexpectedly close presidential contest, Liberal Julio Cesar Turbay Ayala was elected Colombia's President with 49.5% of the vote, while Conservative Belisario Betancur won 46.6% of the vote. Perhaps the most striking feature of the 1978 elections was the high rate of voter abstention, which was most marked among city dwellers and the poor. The 1980 mid-term elections confirmed this trend.

Neither major candidate offered many decisive positions on significant issues in the 1978 presidential campaign, although both promised to crusade against the breakdown of pub-

TRAVEL NOTES

Climate and clothing—Climatic variations depend on altitude. Knits and lightweight wools are useful in Bogotá.

Customs—Visitors need a passport, a smallpox immunization certificate, and a tourist card, which can be obtained from the Colombian Embassy or nearest consulate. US citizens can obtain tourist cards from airlines serving Colombia.

Health—Medical facilities are satisfactory; many doctors have been trained in the US and speak English. Common medicines are available. Water is safe in large cities; food should be carefully prepared.

Telecommunications—Long-distance telephone and telegraph service is available.

Transportation—Flights to Bogotá, Barranquilla, Cali, and Medellin are easily arranged from the US, Europe, and Latin America. Local air service is excellent. Trains serve the densely populated areas, and buses provide service throughout the country. Taxis provide the most reliable public transportation in the cities.

Cultural and scenic attractions—Major tourist attractions in Colombia include the Bogotá Gold Museum, the National Archeological Park at San Agustín, and the Caribbean resort of Cartagena, with its 17th century fortifications.

lic order. Early in his administration, lifetime politician Turbay took steps to combat the problem of terrorism. Backed by a security statute giving the military jurisdiction over certain crimes, the Turbay administration has arrested and tried many suspected subversives. Success in the antisubversive campaign has been limited largely to the urban areas and has triggered criticism of the government for its methods.

The greatest challenge facing the Colombian political system, traditionally controlled by the Colombian elite, is to gain the support of more of the population. The success of the democratic system in Colombia depends especially on the support of the middle class and poor, most of whom recently have demonstrated apathy toward the political system and do not vote.

FOREIGN RELATIONS

The Colombian Government has said that it seeks friendly diplomatic and commercial relations with all countries, regardless of their ideologies or political or economic systems. Colombia has



Primate Catholic Cathedral, Bogotá; Monserrate is on the mountaintop.

played an important role in the United Nations and the Organization of American States (OAS) and their subsidiary agencies. It was the only Latin American country to contribute troops to the U.N. force in the Korean war. Former President Alberto Lleras Camargo was the first Secretary General of the OAS (1948-54). Colombia also has been active in efforts to improve conditions of international trade for the developing countries through the International Coffee Organization (which it helped to found), the U.N. Conference on Trade and Development (UNCTAD), the Latin American Free Trade Association (LAFTA), the Inter-American Economic and Social Council, and other international economic fora.

Colombia took the lead in the negotiations that led to the signing at Bogotá on May 26, 1969, of an agreement for the gradual development of an Andean Common Market, a subregional grouping within LAFTA. The other members are Ecuador, Peru, Bolivia, and Venezuela. The reduction of trade barriers among the Andean countries and the coordination of their economic policies as a result of the 1969 agreement should bring important, long-term benefits to the people of the region.

The Andean Pact nations recently have expanded their joint activities to the political sphere as well, playing a role in hemispheric issues. Colombia has encouraged and supported actively such a role for the Andean group.

The Turbay government has maintained and strengthened Colombia's traditionally active role in international fora. Colombia has played a key role in efforts to restructure the OAS and in the resolution of important hemispheric issues within the regional organization. Turbay has acted to expand Colombia's relations with African and Asian countries, as he promised in his election campaign. He also has sought closer relations with the EEC, and he made an extended trip to Europe during the first year of his administration.

U.S.-COLOMBIA RELATIONS

Colombia has long maintained close and friendly relations with the United States. President Alberto Lleras Camargo visited the United States in 1960; President John F. Kennedy paid a state visit to Colombia in 1961; President Carlos Lleras Restrepo made a state visit in June 1969; and President Lopez made a state visit in 1975.

The record of U.S.-Colombian relations has been one of constructive cooperation. For example, a 3-year multi-fiber-textile agreement signed on May 28, 1975, resolved a trade matter of importance to both countries.

In recent years, the flow of illicit narcotics, especially cocaine, from Colombia to the United States has grown, and both governments are concerned. The joint efforts of the U.S. and Co-

lombian Governments to combat this traffic have increased, but much more needs to be done. The 1980 budget reflects an eightfold increase in American expenditures for the effort to combat the illicit drug flow from Colombia to the United States.

For several years the U.S. Agency for International Development (AID) program in Colombia was the largest in Latin America. Bilateral assistance mainly through AID and its predecessor agencies totaled \$1.6 billion through 1975. However, in 1975 the United States and Colombia agreed that the AID program could be phased out in view of Colombia's growing economic strength and of more pressing needs for AID's resources in poorer countries. Under the phaseout, FY 1977 was the last year for new commitments of bilateral economic assistance to Colombia. The AID mission will remain in Colombia for a few years in order to implement previous commitments.

Principal U.S. Officials

Ambassador—Vacant
Deputy Chief of Mission—T. Frank Crigler
Political Counselor—A. Harold Eisner
Economic/Commercial Counselor—Ray Reimer
Consul General—Kenneth C. Keller
Administrative Counselor—David Bell
Director, AID Mission—Jerry B. Martin
Defense Attache—Colonel Harry L. Dull
Agricultural Attache—James O'Mara
Commercial Attache—Robert Bateman
Public Affairs Officer (USICA)—Michael A. Kristula
Peace Corps Director—Richard Baca
Consul, Barranquilla—Thomas Gustafson
Consul, Cali—William Sergeant
Consul, Medellin—Gerald DeSantillana

The U.S. Embassy in Colombia is located at Calle 37, No. 8-40, Bogotá; the AID Mission is located at Edificio Bavaria, Carrera 10, No. 28-49, Bogotá. ■

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